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A study of a first-year French course using programed instruction at the University of Kentucky is described. Attention is directed to the performance of average and below-average students in the class. An outline of the learning situation notes the use of inexperienced graduate assistants as teachers, the "Basic French" text, minimal steps, individual learning pace, and immediate reinforcement. Results of the Modern Language Association (MLA) Cooperative Foreign Language Tests which were administered to the students are also presented. (AF)

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# *Programmed Language Instruction—Help for the Linguistically "Underprivileged"*

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STUDENTS with average and below average language aptitude derive most benefit from Programmed Language Instruction as demonstrated in several pilot studies with a small number of students.[1] For them, the foreign language requirement is a serious stumbling block in their education and requires an undue amount of their time if there is any hope of success at all. The first year of a foreign language is likely the most difficult for them, since they are weakest in mastering the sound system and basic grammatical structures of any language including their own.

The problem for these students is often aggravated in a large institution where the basic language courses are taught by Graduate Assistants who have little or no teaching experience and who are still learning the language they teach. The first and second semester sections are usually assigned to the novices or to those who are least proficient in the language since the better ones are needed for the advanced sections. Left to his own devices, the poorer student finds that his chances of succeeding are slim indeed.

The following study concerns itself with the average and below average ability student, describes how Programmed Language Instruction helps him and reports the results achieved in a field test. Since the author of programmed materials is also an experienced teacher, the pilot studies conducted by him are subject to the justified criticism that the results may be attributable as much to the skill of the instructor as to the materials. At the University of Kentucky, however, the first year French course is taught by Graduate Assistants exclusively and by those with the least teaching experience. *Basic French*[2] has been used since 1966 as described below.

## I. LEARNING SITUATION

A set of principles, namely, minimal steps, individual learning pace and immediate reinforcement are the essential conditions for programmed learning. Whether teaching machines or any kind of equipment is used is immaterial.

Any learning task in a Program is divided into minimal steps, i.e. learning units so small that they can be learned without making mistakes. The /y/ sound as in the word *Suzanne* will serve as an example. Instead of asking the student to repeat a number of words containing the /y/ sound, the task is divided into a number of steps. First the student learns to hear the /y/ sound and to distinguish it from all other French or English sounds that are usually substituted. This is called "sound identification." Once this discriminatory ability has been acquired the student learns to produce the sound, which again is divided into smaller units. The /y/ sound first appears surrounded by /s/ or /z/ sounds which forces the student to place his tongue in the right position: *Suzanne, suce, s'use* . . . Little by little the sound appears in other positions until the student can produce it without effort. Next it is presented in its written form leading the student to produce it from a visual stimulus; he is taught to read aloud. Again he begins this task through sound identification drills in order to associate the sound with the printed form. Then he learns to read it, and finally to write it through dictations. In this fashion each task is subdivided into many small units that lead to mastery with a minimum of errors if any.

Individual pacing is the second principle of a Program. Each student achieves best results when learning at his own pace. A program therefore must make it possible for a student to learn as slowly or as fast as is best suited for him. Individual learning pace is made possible through minimal steps where each small unit must be mastered before moving on to the next

[1] Theodore Mueller and Robert Harris, "First Year College French Through an Audio-Lingual Program," *IRAL*, Vol. IV, No. 1 (January, 1966), pp. 19–38.

[2] Theodore Mueller and Henri Niedzielski, *Basic French, A Programmed Course*. New York: Appleton-Century-Crofts, 1968.

step. Testing procedures are provided that insure mastery of each step. In *Basic French* a quick test every two minutes on the average demonstrates to the student the learning progress through visual checkmarks. The student is instructed to continue as long as his answers are correct and to redo any segment in which he made mistakes. Individual learning pace is thus assured.

Immediate reinforcement is the third principle of a program. Since the language laboratories came into use it was felt that an auditory confirmation should be given for every response made by the student. However, only a few students are able to remember their own statement or the confirmation. Therefore they cannot make the comparison and know whether their response was correct or not. The low aptitude student in particular is at a disadvantage since auditory memory is his weakest point. The laboratory work as a result, is ineffective and becomes boring to the students. To wit, the empty laboratories.

*Basic French* attempts to solve the problem of immediate and effective reinforcement through a visual confirmation given for each of the student's oral or written responses immediately after his reply. Immediate and visual reinforcement is made possible through the use of a special pen, called ACCESS pen, and coded paper containing the answers printed in invisible ink. In those instances where the student has to make a choice, as in sound identification frames, a stroke of his pen in the right box brings out a grey mark on his paper indicating to him immediately and visually that his choice was correct. The box will retain a yellow line if his choice was incorrect. In other instances where the student has to compose his answer either orally or in writing, the printed answer appears in grey ink, when he rubs the proper spot with his special pen. The comparison between his written answer and the correct response is easy and immediate, since it can be assumed that he is able to make a comparison between two visual answers. If his response was oral, he must compare his utterance with the printed confirmation. Even if his memory of what he said is somewhat faulty, he sees in print the reply that was expected and will much more frequently be made aware of whether his response was correct or not. This confirmation is instantaneous, visible, and a permanent record of the student's learning. This kind of immediate and visual reinforcement produces striking results in laboratory attendance. No need anymore to insist on coming or to keep records of attendance. The students are there because they know they are learning.

Programmed Language Instruction differs from the usual learning set in a number of ways. Class sessions are "display sessions." A grammatical point is explained by the Program rather than by the instructor and drilled by programmed pattern drills, outside of class. The "display sessions" give the student an opportunity to demonstrate what he has learned. They serve primarily as a means of communication between teacher and students or—and more often so—between student and student. For this reason the entire class is divided into groups of two, interacting with each other, and talking to each other under the guidance of the instructor.

The instructor's role is changed. He still motivates the student, corrects and helps, but no longer drills. The machine can do this better than the most skilled human being. His principal role in class is to arrange conditions so that students converse in French for the entire period. He sees to it that what has been learned is applied in a communication situation.

The language laboratory is the teaching machine. During the first few weeks it is the principal, if not the only, source of learning. Later the student spends about half of his study time in the laboratory, and the other half at home. The new language habits that are to be formed are taught here through the programmed drills described above.

Homework is done with a programmed book, which gives the necessary explanations and provides additional needed drills. The student writes out a number of responses in each lesson and receives confirmation for each answer through the use of his ACCESS pen. Many more responses are to be made orally and confirmed through the same device. In this fashion his learning both in the laboratory and at home is under the control of the Program which, if it cannot avoid carelessness by the student,

can nevertheless insure a minimal amount of learning as long as the directions are observed.

The learning situation described answers the much debated question whether a program is self-instructional. If self-instruction implies that a teacher is no longer needed in the first year of instruction, then a program is not self-instructional. A teacher is needed, more so than ever before. But if the question means that the student learns the basic structures of French, or the basic vocabulary through the Program, rather than through the teacher, then a Program is self-instructional. The student has learned to converse in French through the Program and not through class drills or explanations. A Program must be self-instructional in that specific sense, since one of its basic assumptions is that each student will proceed at his own pace. The lock-step of the traditional classroom makes programmed learning impossible.

## II. The Procedures and Results

The results reported here were obtained during the Fall semester 1967. This was still a transitional period during which the test version of the materials had to be used, while the book was being printed. Reinforcement through the use of ACCESS pens was available only in Part I (phonemic structures). The most important exercises for each lesson in Part II were duplicated from the manuscript, while most of the work had to be done in the language laboratory. The results therefore still do not demonstrate the full potential of a programmed course. They are reported because they show interesting features particularly in the distribution of the results as well as the results of low aptitude students.

### *Student Population*

The majority of students enrolled in the fall semester are freshmen. Students who had French in high school are placed in a third semester course if they pass the placement test or in a second semester course if they do not. Between 40 and 50 per cent of the students enrolled in second semester French had their initial training elsewhere. Thus, previous experience with French did not influence the results in the first semester.

The student's foreign language learning aptitude was measured by the Modern Language Aptitude Test (MLAT).[3]

| | MLAT | | |
|---|---|---|---|
| | Fall '66 | Spring '67 | Fall '67 |
| Average | 46% ile | 48% ile | 51% ile |

The aptitude scores which range from the 99th to the 1st percentile suggest that it is an average college class as measured by national norms. "Low Aptitude" students for this study range from the 35th to the 1st percentile on the MLAT. Interviews with most of these latter students indicated that they seem to fall into two categories. A majority are poor language students in their native tongue and received Cs and Ds in English Composition. They are likely to succeed in college only if they choose their courses carefully. A small number are science oriented students with excellent records in their field of specialization.

### *Withdrawals*

The number of students who withdraw from a course indicates the degree of difficulty students attribute to it. The percentage of low aptitude students who feel compelled to withdraw reveals whether they feel able to succeed or not. Table I on the following page summarizes the withdrawals and attempts to compare them with students in first year French courses in which programmed instruction was not used.

A 30 percent withdrawal at the end of the first semester has been considered a normal attrition rate at the institutions where the author has taught. When the audio-lingual skills were stressed, the percentage of withdrawals increased 40 percent at the University of Florida as shown in Table II.

The low withdrawal rates of 15 percent for the first semester and 12 percent for the second semester are credited to the programming techniques, even though certain features were not yet fully used. It is so much more significant since the emphasis on the oral skills has never been equalled in previous courses. These first year French students did not consider the course difficult nor overly time consuming. The

[3] John B. Carroll and Stanley M. Sapon, *Modern Language Aptitude Test*. New York: Psychological Corporation, 1955.

TABLE I

Withdrawals-Fall 1967

| FIRST SEMESTER | | | SECOND SEMESTER | |
|---|---|---|---|---|
| Enrolled | Withdrawals (total) | Low aptitude withdrawals | Enrolled | Withdrawals |
| 237 stud. | 15% | 13% | 141 stud. | 12% |

TABLE II

Withdrawals at other Institutions

| | | | 1st–2nd sem. combined | |
|---|---|---|---|---|
| | Enrolled | 1st Sem. Withdrawals | Enrolled | Withdrawals |
| U. of Florida 1961 | 75 stud. | 40% | | |
| U. of Akron 1963–64 | | | 78 stud. | 54% |
| 1964–65 | | | 75 stud. | 59% |

percentage of low aptitude students who withdrew is decidedly smaller than the normal 30 to 40 percent attrition rate; this suggests that low aptitude students felt that they could succeed in the course.

*Test Results*

The results were measured through final examinations and through the MLA Cooperative Foreign Language tests.[4]

The final examination for the first semester tested the student's ability to understand spoken French and to produce written utterances in appropriate context. The listening comprehension test consisted of a half-hour French televised lecture followed by 15 questions for which multiple choice answers were printed and two taped conversations requiring 9 responses in the same manner. Listening comprehension constituted one-third of the results. The writing test (two-thirds of the results) required written responses to written stimuli:

1. substitutions, eliciting the proper grammatical form:

J'ai téléphoné à mes amis.

*Response*:

Nous ———— à ——— amis.

2. sentence construction, evoking a question and an appropriate answer as a response:

Demandez-lui quand il êst rentré.

*Response*:

Quand est-ce que vous êtes rentré?

Je suis rentré (plus time information).

The final examination for the second semester tested listening comprehension and sentence production in the same manner as described above and reading ability. The reading materials required multiple choice responses to questions based on selections from *Paris-Match*. The various components were rated as follows: Listening comprehension as 25 percent, Reading as 25 percent and sentence construction as 50 percent.

Results of the final examinations

| | 1st sem. | 2nd sem. | Low aptitudes (1st sem.) |
|---|---|---|---|
| 90%—A | 23.3% | 8.6% | 7.7% |
| 80%—B | 30.5% | 26.0% | 15.3% |
| 70%—C | 18.8% | 34.0% | 36.0% |
| 60%—D | 14.7% | 12.6% | 23.0% |
| —E | 12.6% | 17.2% | 17.6% |

The total of D and E grades attests to the fact that the examinations were of the proper difficulty and therefore a fair measuring device. The results in the first semester show a large

[4] *Modern Language Association Cooperative Foreign Language Tests*. Princeton, New Jersey: Educational Testing Service, Cooperative Test Division.

TABLE III

MLA COOPERATIVE TEST RESULTS

| Percentile | Listening Comp. | | Reading | | Writing |
|---|---|---|---|---|---|
| | LA | MA | LA | MA | LA |
| 80–99 | 9% | 36% | 4% | 42% | 17.9% |
| 60–79 | 33% | 22.5% | 12% | 16% | 10.4% |
| 40–59 | 29% | 10% | 17% | 23% | 28 % |
| 25–39 | 13% | 17% | 37% | 9.8% | 17.9% |
| 1–24 | 15% | 13% | 29% | 8.9% | 25 % |
| Average | 51% ile | 60% ile | 36% ile | 65% ile | 43 % ile |
| Low Aptitude average | 42% ile | | 26% ile | | 28 % ile |

displacement from the C to the A and B groups. The low aptitude students had a more normal curve with a somewhat heavier D and E group, as could be expected. Half of those who received an E had an aptitude between 40 and 70 percentile, and were guilty of excessive absences from class (nine absences or more). These results suggest that any student with average aptitude can achieve better than average results with average effort. The low aptitude students can succeed, but with more effort on their part. It remains to be seen whether the full use of visual reinforcement will help the poorer students in the future. They are the ones who have the most difficulty with audio-lingual materials and skills because of their visual orientation.

The second semester results show a normal distribution. Many of the low aptitude students did not register for a second semester; most of them having withdrawn from the University because of poor results elsewhere. Those who did enroll and finish were able to achieve a low C as an average with a range between B and E.

Beginning with the Spring semester 1968, students who have had their beginning French elsewhere will be placed into separate sections using the same materials but geared to their particular problems. If different results will be achieved, they will need to be examined then. Further conclusions at this point would seem premature.

The MLA Cooperative tests were administered: Listening Comprehension, Reading and Writing, Forms LA at the end of the Second Semester; Listening Comprehension and Reading, Forms MA at the end of the Fourth Semester. Speaking could not be administered with the great number of students and limited facilities. The results are reported in Table III.

The *Listening Comprehension* Test at the end of the first year, and even more so at the end of the second year, shows a significant displacement from the average to the above average range. It suggests that at the end of their second year, these students have learned to understand the spoken language with ease. The low aptitude students that could be identified achieved average results, equivalent to a low C.

The *Reading* Test at the end of the first year is difficult for our students for two reasons. Half of the items test vocabulary which is based on more traditional textbooks, while the Program emphasizes a more narrow vocabulary used in everyday conversations and based on *Le Français Elémentaire.* Reading, furthermore, is not a prime objective of the First Year course. These facts influenced the low aptitude students so much more adversely. The results of the second year, on the other hand, show a large displacement towards the above average, but coming this time from the average and below average students. These results suggest again that these students have learned to read with ease at the end of their fourth semester.

The *Writing* Test showed significant displacement at both ends of the curve towards the superior performance and towards failure.

This seems to indicate that those students with enough interest and average aptitude did very well, while low aptitude students and those with inadequate motivation failed. It is also suggested that this skill suffered most from the lack of the reinforcement techniques that the printed book can give. As long as the answer can be seen before the response must be made, it will influence those students with weaker will or lesser motivation.

## III. Conclusions

A Programmed Foreign Language course benefits particularly the average and below average students. The average student can achieve results commensurate with those of a much higher aptitude while the below average student can reach average results in his first year and is likely to do even better in his second year where the passive skills of reading and listening comprehension are the major objectives.

Such a course retains its students significantly better than the average college course. It gives the below average student an opportunity for success commensurate with his ability and it still does not become boring to the above average students.

The results do not depend on the instructor's knowledge of French or teaching skill. The more proficient graduate assistants taught the advanced courses leaving the first year courses to the novices and those whose French leaves something to be desired. Yet, instructors are and always will be needed to provide the expected classroom atmosphere and discipline.

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